UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
PESTICIDE PROGRAMS

Pesticide Monitoring Programs and Data Sources

EPA collaborates with a broad range of partners that currently collect monitoring data related to the use, environmental contamination, exposure, and body burden of pesticides. These data, summarized below, are used extensively by EPA to evaluate the risks posed by pesticides.

Data Area	Description	Monitoring Program/Data	Organization
(1) Use Pattern and Usage	Descriptive information on how, when, where and why pesticide products are used (use pattern information) and quantitative data on the kinds and amounts of pesticides used (usage data).	Pesticide Industry Sales and Usage	EPA
		California Pesticide Information Portal	CA Department of Pesticide Regulation
		National Agricultural Statistics Service (NASS) Agricultural Chemical Use Program	USDA
		Market Research Data	Doane Marketing Research, Inc.
		Residential Exposure Joint Venture	Pesticide Registrant Community
(2) Enforcement/ Compliance	An important type of usage information needed to assess compliance status, trends, and emerging problems.	Office of Enforcement and Compliance	EPA
(3) Direct Exposure: Applicators and Other Agricultural Workers	Information on the levels of pesticides encountered by agricultural and other workers who apply pesticides or work in areas where pesticides have been applied.	Agricultural Reentry Task Force	Pesticide Registrant Community
		Agricultural Handler Exposure Task Force	Pesticide Registrant Community
		Pesticide Handlers Exposure Database	Pesticide Registrant Community
		Antimicrobial Exposure Assessment Task Force	Pesticide Registrant Community
(4) Environmental Dispersal and Contamination	Information on the type and extent of pesticide movement off the target site and into the general environment and the exposures that result.	*See Data Areas 2,5,6, and 7*	
(5) Ground and Surface Water	Environmental dispersal information on the extent of water contamination by pesticides and estimated human exposures from drinking and other uses of contaminated water.	National Water-Quality Assessment Program	USGS
		Pesticide Data Program Drinking Water Project	USDA
		STORET	EPA

Data Area	Description	Monitoring Program/Data	Organization
(6) Dietary Residue	Information on pesticide residue levels in food and feed commodities.	National Health and Nutrition Examination Survey – What We Eat In America	CDC, USDA
		Pesticide Data Program	USDA
		Residue Monitoring Program	FDA
		Total Diet Study	FDA
		U.S. National Residue Program	USDA's Food Safety Inspection Service
(7) Direct Exposure: Indoor and Domestic Outdoor	Information on the pesticide amounts that to which individuals are exposed as a result of contemporary pest control practices, either in residences or from other home and garden uses	Outdoor Residential Exposure Task Force	Pesticide Registrant Community
		Non-Dietary Exposure Task Force	Pesticide Registrant Community
(8) Body Burden	Information on average pesticide residue levels in humans and various other organisms and data on pesticide-induced illnesses and other harmful incidents such as impacts on endangered wildlife species.	National Health and Nutrition Examination Survey – Biomonitoring Program	CDC
		FIFRA Section 6(a) 2 Adverse Event Reporting	EPA
		National Pesticide Information Center	EPA, University of Oregon
		National Poisoning Data System	American Association of Poison Control Centers
		Washington State Cholinesterase Monitoring Program	WA Department of Labor and Industries
		Sentinel Event Notification for Occupational Risk (SENSOR) Program	CDC/NIOSH

1) Pesticide Use Pattern and Usage

Pesticide Industry Sales and Usage: EPA prepares reports that provide economic profile information on the pesticide-producing and pesticide-using sectors covered by the FIFRA-mandated regulatory programs. The reports contain contemporary and historical data estimating the dollar values and quantities of active ingredients used and sold in the United States. Pesticide usage information plays an important role in the evaluation of chemicals prior to registration and in re-evaluating older pesticides already on the market. EPA uses the information to (1) characterize the use or potential use of a pesticide, the alternatives, and the

impact of the use of a pesticide, and (2) develop economic analyses in support of pesticide regulatory activities, and (3) respond to public inquiries.
(http://www.epa.gov/opp00001/pestsales/)

California Pesticide Information Portal: This site delivers user-friendly Internet access to the Department of Pesticide Regulation's extensive pesticide use and label information (PUR Data Source), Ground Water Protection Area information (GWPA Data Source), and the recently added Pesticide Regulation's Endangered Species Custom Realtime Internet Bulletin Engine (PRESCRIBE Data Source) (http://calpip.cdpr.ca.gov/).

National Agricultural Statistics Service (NASS) Agricultural Chemical Use Program: NASS's Agricultural Chemical Use Program is the U.S. Department of Agriculture's official source of statistics about on-farm and post-harvest fertilizer and chemical use and pest management practices.
(http://www.nass.usda.gov/Statistics_by_Subject/Environmental/index.asp)

Doane Marketing Research, Inc., now known as dmrkynetec, and Kline and Company, Inc.): Dmrkynetec's and Kline and Company, Inc's pesticide usage data provide greater coverage of agricultural and nonagricultural sites. (http://www.klinegroup.com/market-research/research_agpesticides.asp)

Residential Exposure Joint Venture (REJV): The REJV was formed in August 1997 to collect, organize and analyze label and use information for pesticide products used in and around the home. This information aids in the conduct of exposure assessments for the use scenarios associated with specific pesticide active ingredients including how to aggregate their exposures as appropriate across specific routes and pathways. The REJV has developed a national survey regarding residential consumer use/usage data for pesticides.

2) Enforcement/Compliance

EPA Office of Enforcement and Compliance: EPA may issue a civil administrative complaint to any person or company who violates FIFRA. The complaint may impose a civil penalty, including recovery of any economic benefit of non-compliance, and may also require correction of the violation. EPA may also issue a Stop Sale, Use or Removal Order (SSURO) prohibiting the person who owns, controls, or has custody of a violative pesticide or device from selling, using, or removing that product except in accordance with the provisions of the SSURO.

3) Direct Exposure: Applicators and Other Agricultural Workers

Agricultural Reentry Task Force (ARTF): ARTF is a joint data development task force formed under FIFRA to provide a database of generic agricultural reentry transfer coefficients that will be applicable to all crop/activity scenarios to its members for assessment of exposure and risk in any post-application agricultural worker reentry scenario.
(http://www.epa.gov/pesticides/science/post-app-exposure-data.html;

http://www.exposuretf.com/Home/ARTF/tabid/57/Default.aspx)

Agricultural Handler Exposure Database: Companies that market agricultural chemical formed the Agricultural Handlers Exposure Task Force (AHETF) in December 2001 to generate generic exposure data applicable to common tasks involved with mixing, loading, or applying agricultural pesticides and to compile those data in a single, comprehensive database. (http://www.epa.gov/pesticides/science/handler-exposure-data.html; http://www.exposuretf.com/Home/AHETF/AHETFDataDevelopment/AHED/tabid/99/Default.aspx)

Pesticide Handlers Exposure Database (PHED): Occupational handler exposure data for use in preparing risk assessments has been a USEPA guideline requirement since 1986. In the early 1990s, the agricultural chemical industry and the regulatory agencies cooperated in establishing the PHED to share exposure data. As PHED becomes outdated, it is being replaced by more robust and contemporary datasets such as those studies by the Agricultural Handlers Exposure Task Force (http://www.epa.gov/pesticides/science/handler-exposure-data.html).

Antimicrobial Exposure Assessment Task Force (AEATF): AEATF is a coordinated effort between the American Chemistry Council and EPA whose primary purpose is to generate exposure data to support EPA's development of improved exposure assessments for antimicrobial (biocide) risk analyses and associated regulatory decision-making. (http://www.epa.gov/hsrb/atoz/antimicrobial-exposure.htm)

4) Environmental Dispersal and Contamination

See Data Areas 2, 5, 6, and 7

5) Ground and Surface Water

National Water-Quality Assessment (NAWQA) Program: EPA has been working closely with the U.S. Geological Survey in developing its monitoring programs for analyzing pesticides in surface water and ground water in the United States. (http://water.usgs.gov/nawqa/pnsp//)

Pesticide Data Program Drinking Water Project: EPA is working with the U.S. Department of Agriculture in designing its drinking water monitoring programs for monitoring pesticides. (http://tinyurl.com/6a7vyog)

STORET: EPA's database contains information on pesticides found in certain watersheds in the United States. (http://www.epa.gov/storet/)

6) Dietary Residue

NHANES/What We Eat in America (WWEIA): NHANES is the Centers for Disease Control and Prevention's National Center for Health Statistics program of studies designed to assess the health and nutritional status of adults and children in the United States. The studies examine risk factors – those aspects of a person's lifestyle, constitution, heredity or environment that may increase the chances of developing a certain disease or condition**.** WWEIA is conducted as a partnership between the U.S. Department of Agriculture (USDA) and the U.S. Department of Health and Human Services (DHHS). WWEIA food intake data can be linked to health status data from other NHANES components, allowing researchers to explore relationships between dietary intakes and health status. EPA uses these data for assessing exposure to pesticides in foods (http://www.cdc.gov/nchs/nhanes/wweia.htm).

USDA Pesticide Data Program (PDP): USDA's PDP is a national pesticide residue database program. Through cooperation with State agriculture departments and other Federal agencies, PDP manages the collection, analysis, data entry, and reporting of pesticide residues on agricultural commodities in the U.S. food supply, with an emphasis on those commodities highly consumed by infants and children. **(http://tinyurl.com/2a6atao)**

FDA Residue Monitoring Program: FDA samples individual lots of domestically produced and imported foods and analyzes them for pesticide residues to enforce the tolerances established by EPA. Domestic samples are typically collected close to the point of production in the distribution system, i.e., growers, packers, and distributors. Import samples are collected at the point of entry into U.S. commerce. Emphasis is on the raw agricultural product, which is typically analyzed as the unwashed, whole (unpeeled), raw commodity. Processed foods are also included. If illegal residues are found at a level above an EPA tolerance or FDA enforcement level, or measurable levels of residues for which EPA has established no tolerance for a given food are found in domestic foods, the lot of food, as available, will be removed from commerce. (http://www.fda.gov/Food/FoodSafety/FoodContaminantsAdulteration/Pesticides/ResidueMonitoringReports/default.htm)

FDA Total Diet Study: The Food and Drug Administration often conducts studies to monitor levels of chemical contaminants (including pesticides) in foods and to estimate the dietary intake of these contaminants. One approach to this is a "total diet," or "market basket," study that involves the analysis of a group of foods that reflect the average food consumption patterns of a given population. Results of the analyses can then be used to estimate the average intake of contaminants from eating those foods.
(http://www.fda.gov/Food/FoodSafety/FoodContaminantsAdulteration/Pesticides/ResidueMonitoringReports/default.htm)

FSIS/USDA US National Residue Program: Food Safety Inspection Service (FSIS) regulates the safety of meat, poultry, and egg products produced in federally inspected establishments. The U.S. NRP tests for chemical compounds, including approved (legal) and unapproved (illegal) pesticides that may appear in meat, poultry, and egg products. FSIS, FDA, EPA, and other federal agencies (including the Agricultural Research Service, Agricultural Marketing Services, and Centers for Disease Control and Prevention) create an annual sampling plan (per calendar year) using sample results from the U.S. NRP, information that the Agencies have

accumulated during investigations, and from FDA veterinary drug inventories completed during on-farm visits (http://www.fsis.usda.gov/Science/Chemistry/).

7) Direct Exposure: Indoor and Domestic Outdoor

Outdoor Residential Exposure Task Force (ORETF): A consortium of over 30 agricultural chemical companies that formed a joint data development task force to satisfy requirements, established under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), for data on exposure of homeowners and professional lawn care operators during the application of pesticides; and exposure to individuals who enter a residential turf area following a pesticide application. The exposure data are being used to assess exposure potential and conduct risk assessments for outdoor residential turf, garden and ornamental pesticide products registered by ORETF members. (http://www.epa.gov/pesticides/science/handler-exposure-data.html; http://www.exposuretf.com/Home/ORETF/tabid/58/Default.aspx)

Non-Dietary Exposure Task Force (NDETF): The NDETF has developed and is developing data to support the quantitative evaluation and assessment of potential residential/consumer exposures to pesticides products. The NDETF's main objective is to develop a comprehensive database of residential exposure data on consumer pesticides in place of default assumptions. These data are also intended to address specific EPA requirements for exposure data. As such, the NDETF data will likely be used to inform EPA decisions and satisfy EPA data requirements on registration and registration review activities for consumer use pesticide active ingredients.

8) Body Burden

National Health and Nutrition Surveys (NHANES): NHANES is the Centers for Disease Control and Prevention's National Center for Health Statistics program of studies designed to assess the health and nutritional status of adults and children in the United States. The studies examine risk factors – those aspects of a person's lifestyle, constitution, heredity or environment that may increase the chances of developing a certain disease or condition**.**

CDC's National Center for Environmental Health (NCEH) has an extensive biomonitoring program, which measures urinary metabolites of a broad range of pesticides in the nationally-representative NHANES. Information on NCEH's biomonitoring program and pesticide biomonitoring results are available through CDC at: (http://www.cdc.gov/exposurereport/).

Washington State Cholinesterase Monitoring: Washington State's Department of Labor and Industries has a program that requires agricultural employers to provide medical monitoring for workers who handle organophosphate and/or N-methyl carbamate pesticides. Through this program, cholinesterase monitoring is used to identify workers that may potentially be overexposed and evaluate their workplace environment for work practices and high-exposure activities. (http://www.lni.wa.gov/Safety/Topics/AtoZ/Cholinesterase/)

CDC/NIOSH Sentinel Event Notification System for Occupational Risk (SENSOR) Program: SENSOR establishes formal reporting for healthcare professionals to report suspected or confirmed pesticide-related illness and injuries. EPA relies heavily on clinicians to report possible pesticide poisonings in order to understand and prevent future pesticide misuse. In the past, clinician reporting has led to tighter regulation and even banning of some pesticides.

Adverse Effects Reporting: Section 6(a)(2) of FIFRA requires pesticide product registrants to submit to the EPA information regarding the unreasonable adverse effects of their products. (http://www.epa.gov/pesticides/fifra6a2)

National Pesticide Information Center (NPIC): NPIC is a cooperative agreement between Oregon State University and EPA. NPIC provides objective, science-based information about pesticides and pesticide-related topics to enable people to make informed decisions about pesticides and their use. Monitoring initiatives performed by NPIC include:

- **Ecological incident reporting portal:** Through a contract with the National Pesticide Information Center (NPIC), EPA has established an ecological incidents reporting portal to collect information on ecological incidents that are suspected or known to be related to pesticide exposures. The purpose of this portal is to collect information from government organizations, academia, wildlife rehabilitation centers, conservation societies, and bee keepers.
  (http://npic.orst.edu/reportprob.html#env).
- **Human Exposure or Illness Reporting:** Through a contract with NPIC, EPA has established a human exposure incident reporting portal that collects information on exposures suspected of being related to pesticides.
  (http://npic.orst.edu/reportprob.html#hum)
- **Illegal Pesticide Applications or Products:** Through a contract with NPIC, EPA has established a portal for reporting problems with pesticide drift, applications where label directions or local regulations are not followed, applications of restricted-use pesticides by unlicensed applicators and the sale of illegal pesticides.
  (http://npic.orst.edu/reportprob.html#app)
- **Pesticide Container or Labeling Problems Reporting:** Through a contract with NPIC, EPA uses information collected from these reports in re-evaluating pesticide products regularly (**http://npic.orst.edu/reportprob.html#prod**).
- **Pet Exposure or Illness Reporting:** Through a contract with NPIC, EPA has established a portal for reporting pet exposures suspected of being related to pesticides (http://npic.orst.edu/reportprob.html#anim)

The American Association of Poison Control Centers (AAPCC): AAPCC collects statistics on poisonings and represents the single largest source of information on acute health effects of pesticides resulting in symptoms and requiring health care. The data include incidents related to individual pesticides and to mixtures of products. The AAPCC uses the National Poison Data System (NPDS), formerly Toxic Exposure Surveillance System, to collect information on all reported incidents. (http://www.aapcc.org/DNN/).

EPA Indicators

Annual Performance Plans: EPA's annual performance plans have contained specific monitoring plans (http://www.epa.gov/planandbudget/archive.html#AnnualPlan).

EPA Report on the Environment "Pesticide Residues in Food" Indicator: This indicator represents data from the U.S. Department of Agriculture's Pesticide Data Program (PDP), which measures residue levels for hundreds of pesticides and their metabolites in fruits, vegetables, grains, meat, and dairy products from across the country, sampling different combinations of commodities each year. The analysis examines pesticides currently on the market and also includes continued testing for some persistent and bioaccumulative pesticides that have been banned since the 1970s, such as aldrin/dieldrin, heptachlors, and DDT and its metabolites. PDP data collection began in 1991 and includes both domestic and foreign-produced commodities. Results are published in annual reports, which include statistics on the number of pesticide residues detected, the number of residues exceeding the tolerance established by EPA for a given pesticide-commodity pair (Code of Federal Regulations, Title 40, Part 180), and the number of residues detected for which no tolerance has been established. This indicator depicts data from 1994 to 2008; data from before 1994 are considered less reliable. Between 1994 and 2008, the number of food samples analyzed per year ranged from a low of 5,771 (1996) to 13,693 (2005), with a general increase over time. (http://cfpub.epa.gov/eroe/index.cfm?fuseaction=detail.viewInd&lv=list.listBySubTopic&r=224028&subtop=312&ch=48).

EPA Report on the Environment "Reported Pesticide Incidents" Indicator: This indicator is based on data from NPDS-published reports for the years 1998 through 2009. During this period, more than 80 percent of the U.S. population was covered by poison control centers (PCCs) reporting to the national database. Annual reports of incidents were divided by the percent of U.S. population served to estimate the total incidents nationwide, and divided by the total U.S. population to develop the incidence rate. For all years the annual data were averaged across 3-year blocks and presented as average annual rates to facilitate identification of trends (http://cfpub.epa.gov/eroe/index.cfm?fuseaction=detail.viewInd&lv=list.listBySubTopic&r=235297&subtop=312&ch=48).